

CLASSIFICATION **SECRET**
 CENTRAL INTELLIGENCE AGENCY
 INFORMATION FROM
 FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT

50X1-HUM

CD NO.

COUNTRY USSR

DATE OF
INFORMATION 1948 - 1950SUBJECT Economic; Technological - Machine tools;
high-speed methodsHOW
PUBLISHED Daily newspapers

DATE DIST. 5 Sep 1950

WHERE
PUBLISHED USSR

NO. OF PAGES 5

DATE
PUBLISHED 11 - 27 May 1950

LANGUAGE Russian

SUPPLEMENT TO
REPORT NO.

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE
 OF THE UNITED STATES WITHIN THE MEANING OF ESPIONAGE ACT NO
 U. S. C. 31 AND 32, AS AMENDED. ITS TRANSMISSION OR THE REVELATION
 OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PRO-
 HIBITED BY LAW. REPRODUCTION OF THIS FORM IS PROHIBITED.

THIS IS UNEVALUATED INFORMATION

SOURCE Newspapers as indicated.

DEMAND NEW-DESIGN MACHINE TOOLS
FOR HIGH-SPEED METALWORKING

FUTURE OUTLOOK ON HIGH-SPEED METHODS -- Moskovskaya Pravda, 12 May 50

The problem of extensively introducing high-speed methods of work pre-
 sents grave responsibilities to designers of machine tools and machines.
 They are obligated to design such equipment which, by its own power capac-
 ity and speed performance, would completely answer all requirements of high-
 speed workers and be sufficiently flexible to allow for future speedup pro-
 cesses. On the other hand, machine-tool and machine builders are obligated
 to master as quickly as possible series production of models already designed.
 It is very important to bear in mind that to produce equipment now, the speed
 ranges of which are limited by standards which have been broken by innovators,
 would mean dragging the technique backwards and slowing down the rate of in-
 dustrial development.

At plants, main administrations, and ministries, detailed preparations
 are being made for the second postwar Five-Year Plan. This Five-Year Plan
 and every Five-Year Plan thereafter will be characterized by increasingly
 higher and more advanced techniques, speeds never before achieved, the con-
 centration of huge power capacities in one combination machine, and intensi-
 fication of technological processes. Preparations for the construction of
 such machines must be made now.

HIGH-SPEED METAL CUTTING STILL A RARITY IN SOVIET PLANTS -- Pravda, 27 May 50

High-speed methods of machining metal are receiving wide dissemination
 in the Soviet Union. The Krasnyy proletariy Plant alone boasts more than
 400 high-speed workers. However, an overwhelming majority of machine-tool
 operators have not yet mastered the advanced working methods proposed by
 innovators. At a number of enterprises of the Ministry of Machine-Tool Build-
 ing, such as the Plant imeni Frunze, Minsk Tool, Barnaul and other plants,
 high-speed methods of cutting metal are only being introduced feebly.

- 1 -

SECRET

CLASSIFICATION

SECRET

STATE	<input checked="" type="checkbox"/> NAVY	<input checked="" type="checkbox"/> NSRB	DISTRIBUTION									
ARMY	<input checked="" type="checkbox"/> AIR	<input checked="" type="checkbox"/> FBI										

SECRET

SECRET

50X1-HUM

NEW HIGH-SPEED LATHE REPLACES OBSOLETE DIP-20M -- Moskovskaya Pravda,
11 May 50

The Krasnyy proletariy DIP-20M machine with its 600 revolutions per minute is no longer meeting new technical requirements. First experiments toward modernizing this machine were conducted at the Krasnyy proletariy plant during the summer of 1948, but this did not solve the problem completely.

At one of the Party meetings, measures calling for the construction of a new, large-series universal screw-cutting lathe were adopted. By the end of the year, the first experimental models of the new high-speed machine were ready for testing. The Ministry of Machine-Tool Building planned to produce the first large group of these new machines during the last quarter of 1949.

However, there were persistent demands that the time limits for the perfection of the new product be shortened. The activity of high-speed workers broadened and their needs had to be satisfied as quickly as possible and in the best way possible. At a general plant Party meeting in January, 1949, the possibility of producing the new high-speed machine by the first days of the third quarter was discussed. The final resolution at the meeting was: "to mobilize plant personnel for converting the new machine tools to conveyer production in the second quarter of 1949."

It is obvious that adopting a resolution is only half the job. Backing up a resolution with sound work organization would be much more important. Party committees, shop organizations, and Party groups busied themselves with this matter. They passed the resolution on to all plant personnel. Agitators, wall newspapers, and mimeographed circulars did a great deal in this direction. The Krasnyy proletariy workers pledged to complete the technological preparation for series production of the new high-speed lathe during the first quarter of 1949 and to put it into conveyer production during the second quarter.

The Party organization raised socialist competition to a new, high level. If a section lagged, the causes were determined, explained, and corrected.

In June 1949 the plant produced the first large series of the new machine tool. In July the DIP-20M was removed from production and the new high-speed machines were installed in its place on the assembly conveyer. The plant succeeded in perfecting the output of the new large-series machine tool, while not cutting down on the production of the old model for a single day. Not only did the plant personnel complete the 1949 plan, it also manufactured ten times more new-type machine tools than called for by the plan.

CONTROL APPARATUS MAKES HIGH-SPEED CUTTING POSSIBLE -- Sovetskaya Latvija,
18 May 50

L. M. Kaufman of the Moscow Machine-Tool Institute imeni Stalin has invented an apparatus for automatic control of metal-cutting machine tools. This device known as the AK-3 automatically machines multi-step cylindrical parts with an accuracy to 0.06 millimeter in both diameter and length, regardless of size. On completion of machining, the lathe stops itself and the cutting tool returns to its original position.

The principle of this apparatus is electromechanical. Its setting is very simple and takes only one minute. The specified dimensions of the part are set on the apparatus after which the machine tool machines the part in accordance with the given drawing without any work on the part of the operator.

This device makes it possible for one worker to service several lathes simultaneously, thus making application of high-speed cutting possible on all machines.

The first series production of the new machine tool, the AK-3, was completed in the second quarter of 1949.

SECRET

SECRET

SECRET

SECRET

50X1-HUM

The Experimental Plant has started series production of these devices. The DIP-200 and 16-16 lathes will be equipped with them.

MACHINE-TOOL CONVERSION NOT SOLE ANSWER TO HIGH-SPEED METHODS -- Vechernyaya Moskva, 13 May 50

Labor productivity at the Moscow Grinder Plant has increased as a result of converting to high-speed methods of cutting metal. This has been accomplished by modernizing machine tools, using hard-alloy tools, and training machine-tool operators.

Some machine tools do not have to be converted. Their spindle speeds have been brought up to 1,200 revolutions per minute. The DIP machines have been equipped with new pulleys which increased the number of revolutions from 700 to 950.

However, high-speed metal cutting was not considered a goal in itself. The main task was to organize a highly productive department. The first step was to simplify operations, that is, to break them down into smaller ones. This makes more extensive application of high-speed methods possible.

A great deal of attention is being given to more effective cutting tools, conserving electric power, and reducing the cost of parts being manufactured.

A new method of soldering hard-alloy blades to holders has been developed. This produces a more durable cutting tool. In addition, methods have worked out whereby the hard-alloy blade is secured by mechanical means.

A great deal of saving has been effected by the use of special hard-alloy bits in a number of different operations. The tool has two cutting edges thereby doubling the productivity of ordinary boring tools.

Electric power is conserved by the use of a so-called stopping device. On completion of an operation, the device shuts off the current. However, when cutting threads, such a device can be detrimental because the consumption of power is increased under frequent current interruption and aggravates the risk of motor breakdown. For this reason, a new, more modern stopping device has been developed.

Recently, drawings of clutches were submitted to workers. After studying these drawings in detail, the workers suggested that the diameter of one clutch be made 22 millimeters smaller and the other, 28 millimeters smaller. The effect was twofold: labor consumption in manufacturing the parts was decreased and metal was saved.

ROUND CUTTING TOOLS PROVE FAR SUPERIOR TO PRISMATIC -- Trud, 19 May 50

A. Ryzhkov, a foreman at the Gor'kiy Plant imeni Lenin, has received recognition throughout the Soviet Union for developing and putting into practice cutting tools for high-speed metal cutting.

As a universal-lathe operator, Ryzhkov had to perform a large number of variegated operations. To work under high-speed methods, he had to use a different cutter every time or regrind the cutting tool giving it a new angle of cutting. The stakhanovite decided to develop a universal cutting tool to successfully solved this problem. In contrast to ordinary cutters, Ryzhkov made cutters from a round bar, not having a prismatic shape. To secure such tools firmly in the tool post, he made a special prismatic tool-shank holder. The cutting tool can be turned in this holder without regrinding and quickly set for any desired angle of cutting.

- 3 -

SECRET

SECRET

SECRET

SECRET

50X1-HUM

Departing from the well known methods of securing hard-alloy blades, Ryzhkov made the blades in the shape of dovetails, inserted them in corresponding grooves in the cutter, and sheathed them under pressure. This method in comparison with soldering, increased the durability of the hard-alloy blades several times.

Until now, high-speed cutting was considered possible only with negative rake cutting tools. The new-design cutter can operate, without regrinding, with either negative rake or positive rake, reaching 40-50 degrees.

The round-bar cutters with large positive rake proved five or six times more durable than prismatic tools with negative rake. They are incomparable for machining interrupted surfaces and permit feed of $1-1\frac{1}{2}$ millimeters per spindle revolution.

The new cutters operate equally well at all speeds suitable for high-speed steel tools and even dozens of times higher.

Finally, by changing the angle of cutting, the lathe operator can easily achieve chip breakage or curling regardless of chip shape and at any speed cutting. Thus, chip breaking grooves or special attachments are not needed.

DEVELOP NEW CURVILINEAR CUTTING TOOL -- Pravda, 26 May 50

Stalin Prize winner Biryukov of the Leningrad Metal Plant imeni I. V. Stalin has developed, in cooperation with other engineers, a new cutting tool, the face of which is curved. Every 100 of such cutters, intended for high-speed cutting, saves the plant 13,000 rubles.

NEW CUTTER INCREASES SPEED OF CUTTING GEAR TEETH -- Moskovskaya Pravda, 12 May 50

To make conversion to high-speed methods of cutting easier, a great deal of work has been done on the introduction of modern tools and new technologies at the Kolmna Heavy Machine-Tool Plant.

For example, a special milling cutter, Progress-VG, is now used for cutting teeth on gears. The new tool increases the speed of cutting gear teeth for DIP-500 machines three times. The use of a cutter with negative angle permits cutting a straight-tooth gear on a screw-cutting lathe at a cutting speed of 400 meters per minute.

At present, 6,062 out of 8,688 machine-tool operations are being performed by high-speed methods. Every stage of milling and turning steel and cast-iron parts is performed at high speeds.

HIGH-FREQUENCY CURRENT UPS OUTPUT AT BEARING PLANT -- Moskovskaya Pravda, 20 May 50

At the First Moscow Bearing Plant imeni L. M. Kaganovich testing of a unit for heating metal by means of high-frequency currents has been completed. This unit was developed by Stalin Prize engineers N. N. Sokolov, V. N. Nikol'skiy, and A. V. Abramov, in cooperation with power workers of the enterprise.

The new method maintains a constant temperature for heating forged pieces and considerably cuts the time for their subsequent machining. Productivity of rolling machines had increased 30 percent. Billets can now be machined in one operation instead of three.

- 4 -

SECRET

SECRET

SECRET

SECRET

50X1-HUM

NEW ALLOY IS MORE DURABLE -- Vechernyaya Moskva, 15 May 50

Outstanding results in the field of high-speed cast-iron machining have been obtained by the use of the new VK-2 alloy developed by the Moscow Hard Alloys Combine. The alloy has been tried at the Borets, Krasnyy proletariy, Gor'kiy Automobile and other plants with consistent success. Its durability has proven to be six or seven times as great as other alloys used for this purpose.

- E N D -

- 5 -

SECRET

SECRET